

ROLLER BLIND SYSTEM, IN PARTICULAR FOR A SUNROOF**REFERENCE TO RELATED APPLICATIONS**

[1] The present invention claims the benefit of German Patent Application No. 102 56 929.0, filed December 5, 2002.

TECHNICAL FIELD

[2] The invention relates to a roller blind system, and more particularly to a roller blind system for use in a vehicle roof.

BACKGROUND OF THE INVENTION

[3] Roller blind systems for use in vehicle roofs may include first roller blind, a second roller blind, and a coiling body on which the two roller blinds are accommodated so that they lie on top of each other.

[4] A roller blind system of this type is known from German Patent Document 197 50 713. The two roller blinds are accommodated on the coiling body to lie congruent to each other. In this type of structure, the roller blinds are guided only on their front margins; lateral guidance of the roller blinds is not provided in the structure.

[5] There are also known roller blinds which are laterally guided (see, for instance, German Laid-Open Document 197 39 919). The roller blind has an edge band extending along the margin of the roller blind and received in a guide.

[6] However, currently known structures are unable to accommodate two roller blinds each having an edge band onto one single coiling body because the two edge bands of the two roller blinds would end up being disposed on top of each other. This would result in a coil with such a high thickness at its edges that it would adversely affect system operability and require an unnecessarily large amount of space to accommodate the increased thickness.

[7] One object of the invention to provide a compact roller blind system having two roller blinds that are adapted to be guided laterally and that can be accommodated on a single coiling body without any of the disadvantages noted above.

SUMMARY OF THE INVENTION

[8] A roller blind system according to one embodiment of the invention offsets the edges of two roller blinds with respect each other in an axial direction relative to the rotational axis of the coiling body. This offset prevents the edge band of one roller blind

from lying on top of the edge band of the other roller blind. As a result, the thicknesses of the two edge bands do not add together when the two roller blinds are wound on the coiling body, preventing excessive bulk.

[9] In one embodiment, the two roller blinds are designed to have the same width and are then accommodated on the coiling body by being offset to each other. In another embodiment, the first roller blind has a width that larger than the width of the second roller blind.

[10] To guide the edge band of each of the roller blinds, the roller blind system includes at least one guide that receives the edge band for each roller blind when the roller blind is withdrawn from the coiling body. In various embodiments, two guides corresponding to the first and second roller blinds may extend in the same plane or in different planes.

BRIEF DESCRIPTION OF THE DRAWINGS

[11] The invention will be described in the following with reference to two embodiments illustrated in the attached drawings in which:

[12] Figure 1 schematically shows an example of a prior art roller blind system;

[13] Figure 2 is a schematic, perspective view a roller blind system according to one embodiment of the invention;

[14] Figure 3 schematically shows a roller blind system according to a one embodiment of the invention;

[15] Figure 4 schematically shows a section along plane IV of Figure 3;

[16] Figure 5 schematically shows a guide for the roller blind system of Figure 3;

[17] Figure 6 schematically shows a roller blind system according to another embodiment of the invention; and

[18] Figure 7 shows a guide for the roller blind system of Figure 6.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[19] Figure 1 schematically shows a coiling body 10 of one example of a conventional roller blind system. Accommodated on the coiling body 10 are first and second roller blinds 12, 14. The width a of the first roller blind 12 is equal to a width b of the second roller blind 14. Because of these equal widths, the margins of the two roller blinds 12, 14 are aligned directly one above the other, causing excessive bulk at the edges when the roller blinds 12, 14 are coiled onto the coiling body 10.

[20] Figure 2 is a representative diagram of a roller blind system according to one embodiment of the invention. The first and second roller blinds 12, 14 are accommodated on the coiling body 10 having a rotational axis L. The first roller blind 12 has a width a that is larger than the width b of the second roller blind 14. These different widths prevents the edges of the two roller blinds 12, 14 from aligning so that they are disposed directly on top of each other on the coiling body 10 when they are coiled up.

[21] Note that alternatively, the first and second roller blinds 12, 14 may have the same width and be offset axially relative to each other along the coiling body 10. This offsets the edges of the roller blinds 12, 14 without having to manufacture roller blinds of two different sizes.

[22] Figures 3, 4 and 5 illustrate an embodiment of a roller blind system having a housing 16 (Figure 4) that is symmetrical with respect to a plane orthogonal to the rotational axis of the coiling body and that surrounds the coiling body 10 and the roller blinds accommodated thereon. Moreover, the figures schematically show a guide 18 that receives an edge band 20 and that is attached to the two margins of the roller blinds 12, 14. Note that the guide 18 is depicted schematically only and is in fact, it extends at the level of the outer margin of the coiling body 10 such that the guide for the first roller blind 12 extends in one direction and the guide for the second roller blind 14 extends in the opposite direction.

[23] Figures 6 and 7 illustrate another embodiment of the roller blind system. In this embodiment, the first and second roller blinds 12, 14 are guided in different planes rather than in the same plane. The different planes can be obtained simply by designing the housing 16 to guide the second roller blind 14 such that the second roller blind 14 exits in a plane that is lower than the first roller blind (e.g., by making the housing shown in Figure 4 asymmetrical with respect to a plane orthogonal to the rotational axis of the coiling body).

[24] It should be understood that various alternatives to the embodiments of the invention described herein may be employed in practicing the invention. It is intended that the following claims define the scope of the invention and that the method and apparatus within the scope of these claims and their equivalents be covered thereby.